WHAT WE CLAIM IS:

1. A method for fairly scheduling access to a shared resource by a plurality of sources, the method comprising the steps of:

selecting a source from the plurality of sources to access the resource responsive to a predetermined order of addressing the plurality of sources, a type of data forwarded from the source and an allocation of the resource to the source, and independent of a size of data stored at each of the plurality of sources.

2. The method according to claim 1, wherein the step of selecting further comprises the step of:

indicating, for each of the sources, the presence of data at the source.

3. The method of claim 2, wherein the step of indicating further comprises the step of:

storing, for each of the sources, an indicator for indicating the presence of data at the source.

4. The method according to claim 1, wherein each of the plurality of sources is associated with a predetermined type of data.

5. The method according to claim 4, where the type of the data indicates a priority of the data.

6. The method according to claim 1, wherein each of the sources is a queue.

7. The method according to claim 3, wherein the step of selecting further comprises the step of:

storing, for each one of the plurality of sources, a weight indicating an allocation amount for the associated source to the shared resource.

8. The method according to claim 7, wherein data stored at each of the plurality of sources comprises one or more data items, and wherein the step of selecting further comprises:

a). examining the indicators of each of the plurality of sources in the order to determine a next source having an indicator set to indicate presence of data at the source;

b). adding the weight associated with the next source to a balance;

c). forwarding a data item from the next source to the shared resource until data items of the data have been forwarded;

d). for each data item that is forwarded from the next source to the shared resource, decrementing the balance;

e). responsive to the balance being greater than zero, and the indicator indicating the presence of data at the source, repeating steps c-d until the balance is less than or equal to zero.

9. An apparatus for fairly scheduling access to a shared resource by a plurality of sources, the apparatus comprising:

an indicator, for each of the sources, for indicating that the source seeks access to the resource;

a selection mechanism for selecting one source from the plurality of sources to have access to the resource responsive to the indicator for each of the sources, an order of selection of each of the sources, a type of data forwarded by each one of the plurality of sources, and independent of a size of data stored by each of the sources.

10. The apparatus of claim 9, wherein data associated with the one source comprises a plurality of data items, the apparatus further comprising:

a storage device to store, for each of the sources, a weight indicating an allotment of the resource to each of the sources;

a device, coupled to the storage device, for allocating transmit cycles to the one source by:

a). adding the weight associated with the one source to a balance;

b). forwarding a data item from the one source to the shared resource until all data items of the data have been forwarded;

c). for each data item that is forwarded from the one source to the shared resource, decrementing the balance;

d). responsive to the balance being greater than zero, and the indicator indicating the presence of data at the source, repeating steps b and c until the balance is less than or equal to zero.

11. A network device for coupling a plurality of sources to an output port, comprising:

a plurality of allocations, each allocation associated with one of the plurality of sources, for indicating an allocation of the network device to the associated source;

a plurality of indicators, each indicator associated with one of the plurality of sources, for indicating whether the associated source has packet data to forward to the output port; and

a selection mechanism for selecting one of the plurality of sources to forward packet data to the output port in response to an order of examining the indicators, a value of each of the indicators, a type of data forwarded from each one of the plurality of sources, the plurality of allocations, and independent of a size of the packet data stored at each of the sources.

12. The network device of claim 11, wherein the selection mechanism further comprises:

a storage device to store, for each of the sources, a weight indicating a desired bandwidth allocation for that source to the output port;

a device, coupled to the storage device, for allocating transmit cycles to the one source by:

a). adding the weight associated with the one source to a balance;

b). forwarding a data item from the one source to the shared resource until all data items of the data have been forwarded;

c). for each data item that is forwarded from the one source to the shared resource, decrementing the balance;

d). responsive to the balance being greater than zero, and the indicator indicating the presence of data at the source, repeating steps b and c until the balance is less than or equal to zero.